#15
1|3|00

1648

ENTERED
See p. 5

```
RAW SEQUENCE LISTING              DATE: 11/28/2000
PATENT APPLICATION:  US/09/306,420C    TIME: 11:53:36

       Input Set : A:\SEQLIST.txt
       Output Set: N:\CRF3\11282000\I306420C.raw

 3 <110> APPLICANT: LOCARNINI, STEPHEN A
 4         BARTHOLOMEUSZ, ANGELINE I
 5         AYE, THEIN T
 6         DEMAN, ROBERT A
 8 <120> TITLE OF INVENTION: VIRAL VARIANTS AND METHODS FOR DETECTING SAME
10 <130> FILE REFERENCE: 2551-28
12 <140> CURRENT APPLICATION NUMBER: 09/306,420C
13 <141> CURRENT FILING DATE: 1999-05-06
15 <150> PRIOR APPLICATION NUMBER: PCT/AU97/00520
16 <151> PRIOR FILING DATE: 1997-08-15
18 <150> PRIOR APPLICATION NUMBER: PO3519
19 <151> PRIOR FILING DATE: 1996-11-08
21 <160> NUMBER OF SEQ ID NOS: 57
23 <170> SOFTWARE: PatentIn Ver. 2.0
25 <210> SEQ ID NO: 1
26 <211> LENGTH: 20
27 <212> TYPE: DNA
28 <213> ORGANISM: Hepatitis B virus
30 <400> SEQUENCE: 1
31 ggagtgtgga ttcgcactcc                                 20
34 <210> SEQ ID NO: 2
35 <211> LENGTH: 17
36 <212> TYPE: DNA
37 <213> ORGANISM: Hepatitis B virus
39 <400> SEQUENCE: 2
40 gctccaaatt ctttata                                    17
43 <210> SEQ ID NO: 3
44 <211> LENGTH: 20
45 <212> TYPE: DNA
46 <213> ORGANISM: Hepatitis B virus
48 <400> SEQUENCE: 3
49 cctttacccc gttgcccggc                                 20
52 <210> SEQ ID NO: 4
53 <211> LENGTH: 17
54 <212> TYPE: DNA
55 <213> ORGANISM: Hepatitis B virus
57 <400> SEQUENCE: 4
58 gctccaaatt ctttata                                    17
61 <210> SEQ ID NO: 5
62 <211> LENGTH: 23
63 <212> TYPE: DNA
64 <213> ORGANISM: Hepatitis B virus
66 <400> SEQUENCE: 5
67 gccgcgtcgc agaagatctc aat                             23
70 <210> SEQ ID NO: 6
71 <211> LENGTH: 20
72 <212> TYPE: DNA
```

RAW SEQUENCE LISTING   DATE: 11/28/2000
PATENT APPLICATION: US/09/306,420C TIME: 11:53:36

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\11282000\I306420C.raw

```
 73  <213> ORGANISM: Hepatitis B virus
 75  <400> SEQUENCE: 6
 76  ggttctatcc taaccttacc                              20
 79  <210> SEQ ID NO: 7
 80  <211> LENGTH: 23
 81  <212> TYPE: DNA
 82  <213> ORGANISM: Hepatitis B virus
 84  <400> SEQUENCE: 7
 85  gcctcatttt gtgggtcacc ata                          23
 88  <210> SEQ ID NO: 8
 89  <211> LENGTH: 21
 90  <212> TYPE: DNA
 91  <213> ORGANISM: Hepatitis B virus
 93  <400> SEQUENCE: 8
 94  tgggggtgga gccctcaggc t                            21
 97  <210> SEQ ID NO: 9
 98  <211> LENGTH: 20
 99  <212> TYPE: DNA
100  <213> ORGANISM: Hepatitis B virus
102  <400> SEQUENCE: 9
103  cacaacattc caccaagctc                              20
106  <210> SEQ ID NO: 10
107  <211> LENGTH: 18
108  <212> TYPE: DNA
109  <213> ORGANISM: Hepatitis B virus
111  <400> SEQUENCE: 10
112  aaattcgcag tccccaac                                18
115  <210> SEQ ID NO: 11
116  <211> LENGTH: 19
117  <212> TYPE: DNA
118  <213> ORGANISM: Hepatitis B virus
120  <400> SEQUENCE: 11
121  gtttccctct tcttgctgt                               19
124  <210> SEQ ID NO: 12
125  <211> LENGTH: 21
126  <212> TYPE: DNA
127  <213> ORGANISM: Hepatitis B virus
129  <400> SEQUENCE: 12
130  ttttcttttg tctttgggta t                            21
133  <210> SEQ ID NO: 13
134  <211> LENGTH: 21
135  <212> TYPE: DNA
136  <213> ORGANISM: Hepatitis B virus
138  <400> SEQUENCE: 13
139  ccaacttaca aggcctttct g                            21
142  <210> SEQ ID NO: 14
143  <211> LENGTH: 23
144  <212> TYPE: DNA
145  <213> ORGANISM: Hepatitis B virus
```

RAW SEQUENCE LISTING   DATE: 11/28/2000
PATENT APPLICATION: US/09/306,420C   TIME: 11:53:36

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\11282000\I306420C.raw

```
147 <400> SEQUENCE: 14
148 catcgtttcc atggctgcta ggc                                      23
151 <210> SEQ ID NO: 15
152 <211> LENGTH: 19
153 <212> TYPE: DNA
154 <213> ORGANISM: Hepatitis B virus
156 <400> SEQUENCE: 15
157 gtttccctct tcttgctgt                                           19
160 <210> SEQ ID NO: 16
161 <211> LENGTH: 21
162 <212> TYPE: DNA
163 <213> ORGANISM: Hepatitis B virus
165 <400> SEQUENCE: 16
166 atacccaaag acaaaagaaa a                                        21
169 <210> SEQ ID NO: 17
170 <211> LENGTH: 550
171 <212> TYPE: DNA
172 <213> ORGANISM: Hepatitis B virus
174 <220> FEATURE:
175 <221> NAME/KEY: CDS
176 <222> LOCATION: (1)..(549)
178 <400> SEQUENCE: 17
179 tct tcc aat ttg tcc tgg tta tcg ctg gat gtg tct gcg gcg ttt tat   48
180 Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr
181  1               5                  10                  15
183 cat att cct ctt cat cct gct gct atg cct cat ctt ctt att ggt tct   96
184 His Ile Pro Leu His Pro Ala Ala Met Pro His Leu Leu Ile Gly Ser
185             20                  25                  30
187 tct gga tta tca agg tat gtt gcc cgt ttg tcc tct aat tcc agg atc  144
188 Ser Gly Leu Ser Arg Tyr Val Ala Arg Leu Ser Ser Asn Ser Arg Ile
189         35                  40                  45
191 aac aac aac atg caa aac ctg cac gac tcc tgc tca agg caa ctc tac  192
192 Asn Asn Asn Met Gln Asn Leu His Asp Ser Cys Ser Arg Gln Leu Tyr
193     50                  55                  60
195 gtt tcc ctc atg ttg ctg tac aaa acc tac gga gag aaa ttg cac ctg  240
196 Val Ser Leu Met Leu Leu Tyr Lys Thr Tyr Gly Glu Lys Leu His Leu
197 65                  70                  75                  80
199 tat tcc cat ccc atc gtc ctg ggc ttt cgc aaa ata cct atg gga gtg  288
200 Tyr Ser His Pro Ile Val Leu Gly Phe Arg Lys Ile Pro Met Gly Val
201                 85                  90                  95
203 ggc ctc agt ccg ttt ctc ttg gct cag ttt act agt gcc att tgt tca  336
204 Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser
205             100                 105                 110
207 gtg gtt cgt agg gct ttc ccc cac tgt ttg gct ttc agc tat atg gat  384
208 Val Val Arg Arg Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Asp
209         115                 120                 125
211 gat gtg gta ttg ggg gcc aag tct gta cag cat cgt gag gcc ctt tat  432
212 Asp Val Val Leu Gly Ala Lys Ser Val Gln His Arg Glu Ala Leu Tyr
213     130                 135                 140
```

RAW SEQUENCE LISTING   DATE: 11/28/2000
PATENT APPLICATION: US/09/306,420C   TIME: 11:53:37

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\11282000\I306420C.raw

```
215 acc gct gtt acc aat ttt ctt ttg tct ctg ggt ata cat tta aac cct    480
216 Thr Ala Val Thr Asn Phe Leu Leu Ser Leu Gly Ile His Leu Asn Pro
217 145               150               155               160
219 aac aaa aca aaa aga tgg ggt tat tcc cta aac ttc atg ggt tac ata    528
220 Asn Lys Thr Lys Arg Trp Gly Tyr Ser Leu Asn Phe Met Gly Tyr Ile
221               165               170               175
223 att gga agt tgg gga aca ttg c                                       550
224 Ile Gly Ser Trp Gly Thr Leu
225               180
228 <210> SEQ ID NO: 18
229 <211> LENGTH: 183
230 <212> TYPE: PRT
231 <213> ORGANISM: Hepatitis B virus
233 <400> SEQUENCE: 18
234 Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr
235  1               5               10               15
237 His Ile Pro Leu His Pro Ala Ala Met Pro His Leu Leu Ile Gly Ser
238               20               25               30
240 Ser Gly Leu Ser Arg Tyr Val Ala Arg Leu Ser Ser Asn Ser Arg Ile
241               35               40               45
243 Asn Asn Asn Met Gln Asn Leu His Asp Ser Cys Ser Arg Gln Leu Tyr
244       50               55               60
246 Val Ser Leu Met Leu Leu Tyr Lys Thr Tyr Gly Glu Lys Leu His Leu
247  65               70               75               80
249 Tyr Ser His Pro Ile Val Leu Gly Phe Arg Lys Ile Pro Met Gly Val
250               85               90               95
252 Gly Leu Ser Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser
253               100               105               110
255 Val Val Arg Arg Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Asp
256               115               120               125
258 Asp Val Val Leu Gly Ala Lys Ser Val Gln His Arg Glu Ala Leu Tyr
259       130               135               140
261 Thr Ala Val Thr Asn Phe Leu Leu Ser Leu Gly Ile His Leu Asn Pro
262 145               150               155               160
264 Asn Lys Thr Lys Arg Trp Gly Tyr Ser Leu Asn Phe Met Gly Tyr Ile
265               165               170               175
267 Ile Gly Ser Trp Gly Thr Leu
268               180
272 <210> SEQ ID NO: 19
273 <211> LENGTH: 550
274 <212> TYPE: DNA
275 <213> ORGANISM: Hepatitis B virus
277 <220> FEATURE:
278 <221> NAME/KEY: CDS
279 <222> LOCATION: (2)..(472)
281 <220> FEATURE:
282 <221> NAME/KEY: CDS
283 <222> LOCATION: (476)..(508)
285 <220> FEATURE:
```

RAW SEQUENCE LISTING   DATE: 11/28/2000
PATENT APPLICATION: US/09/306,420C   TIME: 11:53:37

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\11282000\I306420C.raw

```
286 <221> NAME/KEY: CDS
287 <222> LOCATION: (512)..(526)
289 <220> FEATURE:
290 <221> NAME/KEY: CDS
291 <222> LOCATION: (530)..(550)
293 <400> SEQUENCE: 19
294 t ctt cca att tgt cct ggt tat cgc tgg atg tgt ctg cgg cgt ttt atc 49
295   Leu Pro Ile Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile
296     1               5                  10                  15
298 ata ttc ctc ttc atc ctg ctg cta tgc ctc atc ttc tta ttg gtt ctt 97
299 Ile Phe Leu Phe Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu Val Leu
300                    20                  25                  30
302 ctg gat tat caa ggt atg ttg ccc gtt tgt cct cta att cca gga tca 145
303 Leu Asp Tyr Gln Gly Met Leu Pro Val Cys Pro Leu Ile Pro Gly Ser
304            35                  40                  45
306 aca aca aca tgc aaa acc tgc acg act cct gct caa ggc aac tct acg 193
307 Thr Thr Thr Cys Lys Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser Thr
308        50                  55                  60
310 ttt ccc tca tgt tgc tgt aca aaa cct acg gag aga aat tgc acc tgt 241
311 Phe Pro Ser Cys Cys Cys Thr Lys Pro Thr Glu Arg Asn Cys Thr Cys
312 65                  70                  75                  80
314 att ccc atc cca tcg tcc tgg gct ttc gca aaa tac cta tgg gag tgg 289
315 Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu Trp
316                    85                  90                  95
318 gcc tca gtc cgt ttc tct tgg ctc agt tta cta gtg cca ttt gtt cag 337
319 Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln
320            100                 105                 110
322 tgg ttc gta ggg ctt tcc ccc act gtt tgg ctt tca gct ata tgg atg 385
323 Trp Phe Val Gly Leu Ser Pro Thr Val Trp Leu Ser Ala Ile Trp Met
324            115                 120                 125
326 atg tgg tat tgg ggg cca agt ctg tac agc atc gtg agg ccc ttt ata 433
327 Met Trp Tyr Trp Gly Pro Ser Leu Tyr Ser Ile Val Arg Pro Phe Ile
328            130                 135                 140
330 ccg ctg tta cca att ttc ttt tgt ctc tgg gta tac att taa acc cta 481
331 Pro Leu Leu Pro Ile Phe Phe Cys Leu Trp Val Tyr Ile     Thr Leu
332 145                 150                 155
334 aca aaa caa aaa gat ggg gtt att ccc taa act tca tgg gtt aca taa 529
335 Thr Lys Gln Lys Asp Gly Val Ile Pro     Thr Ser Trp Val Thr
336 160                 165                 170
338 ttg gaa gtt ggg gaa cat tgc 550
339 Leu Glu Val Gly Glu His Cys
340     175                 180
343 <210> SEQ ID NO: 20
344 <211> LENGTH: 157
345 <212> TYPE: PRT
346 <213> ORGANISM: Hepatitis B virus
348 <400> SEQUENCE: 20
349 Leu Pro Ile Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile
350     1               5                  10                  15
```

**Please Note:**
**Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220> to
<223> fields of each sequence which presents at least one n or Xaa.**

VERIFICATION SUMMARY   DATE: 11/28/2000
PATENT APPLICATION: US/09/306,420C   TIME: 11:53:38

Input Set : A:\SEQLIST.txt
Output Set: N:\CRF3\11282000\I306420C.raw

```
L:437  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24
L:496  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:499  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:502  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:528  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26
L:584  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:587  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:628  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28
L:911  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:914  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:917  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:920  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:923  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:926  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:929  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:932  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:935  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:938  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:941  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:944  M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:1126 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41
L:1205 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:1208 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:1211 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:1252 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43
L:1288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44
L:1291 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44
L:1327 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:1365 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48
```